

What Is Claimed Is:

1. A sensor for determining a physical property of a gas that is to be measured, especially the pressure, the temperature or the concentration of a gas component in the exhaust gas of internal combustion engines, comprising a sensor housing (10), a sensor element (11) supported therein, whose gas sensitive sensor section (111) protrudes from the sensor housing (10), and having a protective tube (12) that surrounds the sensor section (111) and is fixed at sensor housing (10), wherein the protective tube (12) has a spiral-shaped tube wall profile.
2. The sensor as recited in Claim 1, wherein the protective tube (12) is produced from sheet metal.
3. The sensor as recited in Claim 2, wherein the sheet metal is patterned at least on one side, preferably sand-blasted.
4. ○The sensor as recited in Claim 2, wherein the sheet metal is coated at least on one side.
5. ○The sensor as recited in Claim 1, wherein the protective tube (12) is made up of a sintered ceramic.
6. The sensor as recited in Claim 1, wherein the protective tube (12) is made up of sheet metal and a sintered ceramic foil applied on top of it.
7. The sensor as recited in Claim 6, wherein the sheet metal and the ceramic foil are formed together to form a protective tube.
8. The sensor as recited in Claim 6, wherein the sheet metal and the ceramic foil are formed each by itself to form a spiral tube, and the two spiral tubes are slipped into each other axially. ?????
9. The sensor as recited in one of Claims 2 through 8, wherein the protective tube (12) is formed from a flat sheet metal pattern (17) or foil pattern (17).

10. The sensor as recited in Claim 9,
wherein the pattern (17) is a rectangle, a triangle or a pentagon.
11. The sensor as recited in one of Claims 1 through 10,
wherein the protective tube (12), at least at the innermost spiral region, that is
bordered by the tube wall section which directly surrounds the sensor element (11), is
covered at its end face using a gas-permeable filter (16).
12. The sensor as recited in one of Claims 1 through 10,
wherein the protective tube (12), at least at the innermost spiral region, that is
bordered by the tube wall section which directly surrounds the sensor element (11),
tapers in the direction of its end face opening.